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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|---|-------------|----------------------|-----------------------------------|------------------------|
| 10/511,936 | 08/03/2005 | Robert Riener | 82331 | 9503 |
| 23685 7590 07/20/2007 KRIEGSMAN & KRIEGSMAN 30 TURNPIKE ROAD, SUITE 9 SOUTHBOROUGH, MA 01772 | | | EXAMINER HADIZONOOZ, BANAFSHEH | |
| | | | ART UNIT 3714 | PAPER NUMBER |
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

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|------------------------------|---|--------------------------------------|--|
| Office Action Summary | Application No. 10/511,936 | Applicant(s) RIENER ET AL. | |
| | Examiner Banafsheh Hadizonooz | Art Unit 3714 | |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 03 August 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-9 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-9 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 19 October 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>08/03/2005</u> | 6) <input type="checkbox"/> Other: _____ |

Detailed Action

In response to the amendment filed on 08/03/2005, Claims 1-9 are pending. This office action is made **Non-Final**.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Schmitt et al (US 4,435,163) in view of Azerad et al. (US 2004/0091845).

[Claims 1, 6]: Schmitt discloses a method for learning and training dental treatment techniques, according to which forces are applied to a tooth (e.g. pressure) held in an artificial mandible (e.g. artificial jaw) by means of a tool or by hand in order to examine or treat the tooth, in which case the mandible or the tooth is coupled with a force measuring device (e.g. pressure-sensitive element) which converts the forces applied to the tooth into electric measurement signals that are fed to a data processing device (e.g. microprocessor) which comprises a data memory (e.g. to retrieve appropriate sound). Schmitt does not specifically disclose force/time courses of different treatment steps. However, Azerad discloses a multitude of reference force/time courses (e.g. MH models for each tooth) (See P.3, [0051]) of different treatment steps are stored (e.g. in handtools and teeth library) in a manner that enables them to be retrieved (See Fig.3 and P.3, [0071]), the method comprising the following steps:

- Selection of a reference force/time course appropriate to a tooth treatment to be learned or trained (e.g. selecting the tooth to be inserted in virtual jaw) (See P.3, [0070]),
- start of the simulated tooth treatment,
- measuring of the forces applied to the tooth by means of a tool or by hand by means of the force measuring device coupled with the mandible or the tooth and determination of the amount and direction thereof in the course of the time e.g. as the drilling continues deep in the tooth)(See Fig.2A and 2B), whereby this actual force/time course is simultaneously with the selected reference force/time course or values derived from it represented on an optic display unit(See Fig. 1A), and
- determination as to whether the force/time courses or values derived from them show a predetermined correlation among each other (See P.3, [0071]). Azerad further discloses a program (e.g. driver program or user interface program), which controls the data processing device in a way that allows the selected reference force/time course and the actual force/time course of the simulated tooth treatment to be presented on an optic display (See P.3, [0054]-[0055]).

Therefore it would have been obvious to one of ordinary skill in the art at the time of invention to incorporate the force feedback system of Azerad into the system and method of Schmitt in order to design a system that provides a closes to reality models for training purposes.

[Claim 2]: Azerad further discloses a method wherein the measured force/time course is converted into a movement/time course, visualized and compared with a stored reference movement/time course (See P.2, [0047]-P.3,[0048]).

[Claims 3, 7]: Regarding claims 3 and 7, Azerad further discloses acoustic signal patterns stored in correlation with the measured force/time course are retrieved and displayed by an acoustic display unit, wherein the multitude of sound samples are stored in the data memory in which case by means of a program subject to the actual force/time course of the simulated tooth treatment a sound sample belonging to it can be displayed (See P.4, [0073]).

[Claim 4]: With respect to claim 4, Azerad further discloses that the spatial position of the force application point of the tool is determined by means of a navigation system (See P.2, [0030]).

[Claim 5]: As per claim 5, Azerad discloses at least one force sensor (See Fig.3), is arranged at the tool the measurement signal of which is fed to the measurement signal of the force measuring device at the tooth or at the mandible for the purpose of measured value correction (See P.2, [0031]-[0033] and P.3, [0057]).

[Claim 8]: Azerad further discloses at least one force measuring device that is arranged at the tool and formed to measure the force applied by the tool and further a control and correction program (e.g. LP and LU) is provided which calculates a measured value correction of the forces measured at the tooth or at the mandible(See Fig 2B).

[Claim 9]: Azerad further discloses a navigation system for determination of the position of the tool application point (See P.2, [0031]).


Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Banafsheh Hadizonooz whose telephone number is 571-272-1242. The examiner can normally be reached on 8:00-5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Robert Pezzuto can be reached on (571) 272- 6788. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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SUPERVISORY PRIMARY EXAMINER